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EXAMINER

GUILL, RUSSELL L

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/007,056	POLEY ET AL.	
	Examiner	Art Unit	
	Russell L. Guill	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 28-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 28-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to an Amendment filed September 2, 2005. Claims 1 – 14 and 28 – 33 are pending. Claims 1 – 14 and 28 – 33 have been examined. Claims 1 – 14 and 28 – 33 have been rejected.

Response to Remarks

2. Regarding **claim 1** rejected under 35 U.S.C 103(a):

2.1. The Applicant argues on page 12, section 1 (i), that even if the Frantz et al. reference could be modified by the teachings of IBM Technical, the resulting system still would lack the features of Applicants' claim 1 of "sending the received USB command messages to the peripheral emulator through the network interface using the network communications protocol; and receiving USB response messages from the peripheral emulator through the network interface using the network communications protocol . . .".

2.2. The Examiner replies that the above limitations are taught by the Frantz reference as modified by IBM Technical reference, in the action, as follows:

2.2.1. Frantz teaches USB peripheral devices (**Abstract, third sentence**).

2.2.2. Frantz teaches one or more USB interfaces configured to communicate with one or more USB ports of the host to communicate USB messages with the host (**figure 1, elements 150 and 125; and column 5, lines 65 – 67; and column 6, lines 1 – 4 and lines 42 – 45**).

2.2.3. Frantz teaches a network interface configured to communicate with a peripheral using a network communications protocol (**figure 1, elements 150, 160, 175, 265, 250, 240, 245; and figure 2, elements 170, 270, 285, 290, 240, 245, 295**).

2.2.4. Frantz teaches operating logic configured to perform actions comprising:

2.2.4.1. Receiving USB command messages from the host (**column 10, lines 55 – 67; and column 11, lines 1 – 21; and figure 2**);

2.2.4.2. Sending the received command messages to the peripheral through the network interface using the network communications protocol (**figure 2; and figure 3, elements “queries to USB function logic and system prompts”, “prompts”, “Communicate over appropriate interface”; and column 5, lines 65 – 67; and column 6, lines 1 – 47**).

2.2.4.3. Receiving response messages from the peripheral through the network interface using the network communications protocol (**figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”; and column 5, lines 65 – 67; and column 6, lines 1 – 67**);

2.2.4.4. Sending the received response messages through the one or more USB interfaces to the host (**figure 2, and figure 3; and column 7, lines 45 – 60**).

2.2.5. Frantz does not specifically teach (the missing limitations are in **bold, italic and underscore**):

2.2.5.1. Sending the received **USB** command messages to the peripheral **emulator** through the network interface using the network communications protocol;

2.2.5.2. Receiving **USB** response messages from the peripheral **emulator** through the network interface using the network communications protocol;

2.2.5.3. Sending the received **USB** response messages through the one or more USB interfaces to the **in-test** host.

2.2.6. Since, as discussed above, Frantz teaches USB peripheral devices, USB interfaces, USB ports and receiving USB command messages, it would have been obvious to the ordinary artisan at the time of invention to use the teachings of Frantz to produce:

2.2.6.1. Sending the received **USB** command messages to the peripheral through the network interface using the network communications protocol;

2.2.6.2. Receiving **USB** response messages from the peripheral through the network interface using the network communications protocol;

2.2.6.3. Sending the received **USB** response messages through the one or more USB interfaces to the host.

2.2.7. Therefore, the following limitations remain to be supplied by IBM Technical (the missing limitations are in **bold, italic and underscore**):

2.2.7.1. Sending the received USB command messages to the peripheral **emulator** through the network interface using the network communications protocol;

2.2.7.2. Receiving USB response messages from the peripheral **emulator** through the network interface using the network communications protocol;

2.2.7.3. Sending the received USB response messages through the one or more USB interfaces to the **in-test** host.

2.2.8. IBM Technical teaches an *in-test* host (*page 1212, first paragraph labeled 2p*) and a peripheral *emulator* (*page 1212, first paragraph labeled 2p*).

2.2.9. It would have been obvious to the ordinary artisan at the time of invention to use the teachings of IBM Technical with the teachings of Frantz to produce:

2.2.9.1. Sending the received USB command messages to the peripheral *emulator* through the network interface using the network communications protocol;

2.2.9.2. Receiving USB response messages from the peripheral *emulator* through the network interface using the network communications protocol;

2.2.9.3. Sending the received USB response messages through the one or more USB interfaces to the *in-test* host.

2.2.10. Therefore, as discussed above, the Frantz et al. reference as modified by the teachings of IBM Technical, provides a resulting system with the features of Applicants' claim 1 of "sending the received USB command messages to the peripheral emulator through the network interface using the network communications protocol; and receiving USB response messages from the peripheral emulator through the network interface using the network communications protocol . . .".

2.2.11. Accordingly, the rejection is maintained.

3. Regarding **claim 28** rejected under 35 U.S.C 103(a):

3.1. The Applicant argues on page 14, section 1 (i), that even if the Frantz et al. reference could be modified by the teachings of IBM Technical, the resulting system still would lack the features of Applicants' claim 28 of "sending the command data packets to one or more

Art Unit: 2123

peripheral emulators over network communications media” and “receiving response data packets from the one or more peripheral emulators over network communications media . .

.”

3.2. The Examiner replies that the above limitations are taught by the Frantz reference as modified by IBM Technical reference, in the action, as follows:

3.2.1. Frantz teaches:

3.2.1.1. Sending the command data packets to one or more peripherals over network communications media (figure 2, elements 150, 200, 170, 175, 270, 285, 225, 235, 280, 290, 240, 245, 295; and column 3, lines 65 –67; and column 4, lines 1 – 47).

3.2.1.2. Receiving response data packets from the one or more peripherals over the network communications media, wherein the response data packets are formatted in accordance with a network communications protocol (figure 2, elements 150, 200, 170, 175, 270, 285, 225, 235, 280, 290, 240, 245, 295; and column 3, lines 65 –67; and column 4, lines 1 – 47).

3.2.2. Frantz does not specifically teach (the missing limitations are in **bold, italic and underscore**):

3.2.2.1. sending the command data packets to one or more peripheral **emulators** over network communications media.

3.2.2.2. receiving response data packets from the one or more peripheral **emulators** over the network communications media, wherein the response data packets are formatted in accordance with a network communications protocol.

3.2.3. IBM Technical appears to teach an *in-test* host (page 1212, first paragraph labeled 2p) and a peripheral *emulator* (page 1212, first paragraph labeled 2p).

3.2.4. Therefore, as discussed above, the Frantz et al. reference as modified by the teachings of IBM Technical, provides a resulting system with the features of Applicants' claim 28 of "sending the command data packets to one or more peripheral emulators over network communications media" and "receiving response data packets from the one or more peripheral emulators over network communications media . . ."

3.2.5. Accordingly, the rejection is maintained.

4. Regarding dependent **claim 2** rejected under 35 U.S.C 103(a):

4.1. The Applicant argues on page 14, section 1 (i), that the Frantz et al. reference fails to disclose or suggest a peripheral emulator that is programmed to emulate one or more USB peripherals, and the IBM Technical reference also fails to disclose or suggest the same element.

4.2. The Examiner replies that:

4.2.1. Frantz teaches USB peripheral devices (Abstract, third sentence).

4.2.2. IBM Technical teaches a peripheral emulator that is programmed to emulate one or more peripherals (page 1212, first paragraph labeled 2p).

4.2.3. It would have been obvious to use the art of IBM Technical with the art of Frantz to produce a peripheral emulator that is programmed to emulate one or more USB peripherals.

4.2.4. Accordingly, the rejection is maintained.

5. Regarding dependent **claim 29** rejected under 35 U.S.C 103(a):

5.1. The Applicant argues on page 14, section 1 (i), that the Frantz et al. reference fails to disclose or suggest emulating one or more different USB peripherals within the one or more peripheral emulators to create the incoming USB messages, and the IBM Technical reference also fails to disclose or suggest the same element.

5.2. The Examiner replies that:

5.2.1. Frantz teaches USB peripheral devices (**Abstract, third sentence**).

5.2.2. IBM Technical teaches emulating one or more different peripherals within one or more peripheral emulators to create the incoming peripheral messages (**page 1212, first paragraph labeled 2p and second paragraph**).

5.2.2.1. Regarding (**page 1212, first paragraph labeled 2p and second paragraph**); it would have been obvious that the peripheral emulator creates incoming peripheral messages.

5.2.3. It would have been obvious to use the art of IBM Technical with the art of Frantz to produce “emulating one or more different USB peripherals within the one or more peripheral emulators to create the incoming USB messages.”

5.2.4. Accordingly, the rejection is maintained.

6. Regarding “no motivation to modify the primary Frantz et al. reference in view of IBM Technical, as proposed in the Office Action”:

6.1. The Applicant argues on page 15, section 1 (ii), that modifying the Frantz et al. reference, by replacing the management console and attached peripheral devices with a second computer that emulates input/output devices, would render the invention of Frantz

et al. unfit for its intended purpose and, therefore, would not have been obvious to one of ordinary skill in the art.

6.2. The Examiner replies that:

6.2.1. The teachings of Frantz are being used with the teachings of IBM Technical, and therefore the physical invention of Frantz et al. is not modified.

6.2.2. Even if the physical invention of Frantz were modified as proposed, the invention of Frantz et al. would remain fit for its intended purpose because the modified invention would continue to allow the server to send and receive data from the emulated peripherals at the management console, since server would not know that the peripherals were emulated. Emulated peripherals function the same as the real peripherals.

6.2.3. Accordingly, the rejections are maintained.

7. Regarding **Claims 3, 5, 9 and 10** rejected under 35 U.S.C. 103(a):

7.1. The Applicant argues on page 16, section 2 that claims 3, 5, 9 and 10 are allowable by virtue of their dependency from claim 1, as well as for the additional features that they recite.

7.2. The Examiner replies that, as discussed above, the rejection of claim 1 is maintained. Additional references were used in the claims to support the additional features that the claims recite.

8. Regarding **Claims 6, 7 and 30** rejected under 35 U.S.C. 103(a):

8.1. The Applicant argues on pages 17 - 18, section 3 that claims 6, 7 and 30 are allowable by virtue of their dependency from claims 1 and 28, as well as for the additional features that they recite, for example:

8.1.1. Regarding claim 6, “the general-purpose computer is further programmed to generate USB response messages that test the in-test host with ranges of USB peripheral parameters.”

8.1.2. Regarding claim 7, “the general-purpose computer is further programmed to generate abnormal USB response messages in order to test the in-test host with such abnormal USB response messages.”

8.1.3. Regarding claim 30, “creating abnormal USB response messages in response to the packaged USB command messages and packaging said abnormal USB response messages in the response data packets in order to test the in-test host’s ability to handle such abnormal USB response messages.”

8.2. Regarding claim 6, the Examiner replies:

8.2.1. Frantz teaches USB peripheral devices (**Abstract, third sentence**).

8.2.2. Frantz teaches that a peripheral generates response messages to a host with peripheral parameters (**figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”, elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67**).

8.2.3. IBM Technical teaches a general-purpose computer programmed to emulate one or more peripherals (**page 1212, first paragraph labeled 2p and second paragraph**), and test an in-test host (**page 1212, first paragraph labeled 2p and second paragraph**).

8.2.4. McConnell teaches testing with ranges of parameters (page 604, section “Classes of Good Data”, especially bullet “Maximum normal configuration”).

8.2.5. It would have been obvious to use the art of IBM Technical and the art of McConnell with the art of Frantz et al. to produce, “the general-purpose computer is further programmed to generate USB response messages that test the in-test host with ranges of USB peripheral parameters.”

8.3. Regarding claim 7, the Examiner replies:

8.3.1. Frantz teaches USB peripheral devices (Abstract, third sentence).

8.3.2. Frantz teaches that a peripheral generates response messages to a host with peripheral parameters (figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”, elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67).

8.3.3. IBM Technical teaches a general-purpose computer programmed to emulate one or more peripherals (page 1212, first paragraph labeled 2p and second paragraph), and testing an in-test host (page 1212, first paragraph labeled 2p and second paragraph).

8.3.4. McConnell teaches testing with abnormal parameters (page 603, section “Classes of Bad Data”, especially bullet “the wrong kind of data (invalid data)”).

8.3.5. It would have been obvious to use the art of IBM Technical and the art of McConnell with the art of Frantz et al. to produce, “the general-purpose computer is further programmed to generate abnormal USB response messages in order to test the in-test host with such abnormal USB response messages.”

8.4. Regarding claim 30, the Examiner replies:

8.4.1. Frantz teaches response messages in response to the packaged command messages and packaging said response messages in the response data packets (figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”, elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67.

8.4.2. IBM Technical teaches an in-test host (page 1212, first paragraph and second paragraph).

8.4.3. McConnell teaches testing with abnormal parameters in order to test the software’s ability to handle such abnormal parameters (page 589, and page 603, section “Classes of Bad Data”, especially bullet “the wrong kind of data (invalid data)”).

8.4.4. It would have been obvious to use the art of IBM Technical and the art of McConnell with the art of Frantz et al. to produce, “creating abnormal USB response messages in response to the packaged USB command messages and packaging said abnormal USB response messages in the response data packets in order to test the in-test host’s ability to handle such abnormal USB response messages.”

9. Regarding **Claim 8** rejected under 35 U.S.C. 103(a) (pages 18 – 19, section 4):

9.1. The Applicant argues on pages 18 -19, section 4 that claim 8 is allowable by virtue of its dependency from claim 1, as well as for the additional features that they recite.

9.2. Regarding claim 8, the Examiner replies:

9.2.1. Frantz teaches USB peripheral devices (Abstract, third sentence).

9.2.2. Frantz teaches that a particular command message is designated for a particular one of a plurality of different emulated peripheral devices (column 3, lines 65 – 68; and column 4, lines 1 – 30).

9.2.3. Frantz teaches operating logic (column 3, lines 65 – 68; and column 4, lines 1 – 30).

9.2.4. Tanenbaum teaches a network communications protocol that supports a plurality of logical ports (pages 486 – 487, section labeled “Berkeley Sockets”, especially figure 6-6, primitives SOCKET and BIND).

9.2.5. UsbSpecs teaches that operating logic maintains a correspondence between peripheral devices and logical ports (page 21, section 4.8.1 Device Characterizations, first sentence).

9.2.6. UsbSpecs teaches operating logic sends a particular USB command message to one of the ports that corresponds to one of a plurality of different peripheral devices (page 21, section 4.8.1 Device Characterizations, first sentence; and page 36, section 5.5 Control Transfers, second sentence).

9.2.7. It would have been obvious to use the art of IBM Technical and the arts of UsbSpecs and Tanenbaum with the art of Frantz et al. to produce, “a particular USB command message is designated for a particular one of a plurality of different emulated peripheral devices; the network communications protocol supports a plurality of logical ports; the operating logic maintains a correspondence between emulated peripheral devices and logical ports; and the operating logic sends a particular USB command message to one of the logical ports that corresponds to said particular one of the plurality of different emulated peripheral devices.”

10. Regarding Claims 13, 14, 32 and 33 rejected under 35 U.S.C. 103(a):

10.1. The Applicant argues on page 20, section 5 that claims 13, 14, 32 and 33 are allowable by virtue of their dependency from claim 1, as well as for the additional features that they recite.

10.2. The Examiner replies that, as discussed above, the rejection of claim 1 is maintained. Additional references were used in the claims to support the additional features that the claims recite.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) in view of IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213).

13.1. The art of Frantz is directed toward a system in which a first computer couples to an interface unit via a Universal Serial Bus (USB), and the interface unit couples to a remote computer (column 1, lines 22 -32) via a network link (column 7, lines 9 - 15; and figure 1, element 175; and column 3, lines 65 - 68; and column 4, lines 1 - 30) such that peripherals and input/output devices of the remote computer appear as peripherals and input/output devices of the first computer (column 1, lines 22 -32).

13.2. The art of IbmTechnicalDisclosure is directed toward using a second computer to emulate multiple input/output devices such that it can be attached to a first computer for testing the first computer system and its computer programs (page 1212, first paragraph). It also provides the capability for testing programs that drive currently unavailable devices (page 1212, first paragraph).

13.3. Frantz appears to teach USB peripheral devices (Abstract, third sentence).

13.4. Frantz appears to teach one or more USB interfaces configured to communicate with one or more USB ports of the host to communicate USB messages with the host (figure 1, elements 150 and 125; and column 5, lines 65 - 67; and column 6, lines 1 - 4 and lines 42 - 45).

13.5. Frantz appears to teach a network interface configured to communicate with a peripheral using a network communications protocol (figure 1, elements 150, 160, 175, 265, 250, 240, 245; and figure 2, elements 170, 270, 285, 290, 240, 245, 295).

13.6. Frantz appears to teach operating logic configured to perform actions comprising:

13.6.1. Receiving USB command messages from the host (column 10, lines 55 – 67; and column 11, lines 1 – 21; and figure 2);

13.6.2. Sending the received command messages to the peripheral through the network interface using the network communications protocol (figure 2; and figure 3, elements “queries to USB function logic and system prompts”, “prompts”, “Communicate over appropriate interface”; and column 5, lines 65 – 67; and column 6, lines 1 – 47).

13.6.3. Receiving response messages from the peripheral through the network interface using the network communications protocol (figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”; and column 5, lines 65 – 67; and column 6, lines 1 – 67);

13.6.4. Sending the received response messages through the one or more USB interfaces to the host (figure 2, and figure 3; and column 7, lines 45 – 60).

13.7. Frantz does not specifically teach one or more USB interfaces configured to communicate with one or more USB ports of the in-test host to communicate USB messages with the in-test host.

13.8. Frantz does not specifically teach a network interface configured to communicate with a peripheral emulator using a network communications protocol.

13.9. Frantz does not specifically teach operating logic configured to perform actions comprising:

- 13.9.1. Receiving USB command messages from the *in-test* host;
- 13.9.2. Sending the received *USB* command messages to the peripheral *emulator* through the network interface using the network communications protocol;
- 13.9.3. Receiving *USB* response messages from the peripheral *emulator* through the network interface using the network communications protocol;
- 13.9.4. Sending the received *USB* response messages through the one or more USB interfaces to the *in-test* host.

13.10. IbmTechnicalDisclosure appears to teach an *in-test* host (*page 1212, first paragraph labeled 2p*) and a peripheral *emulator* (*page 1212, first paragraph labeled 2p*).

13.11. The motivation to use the art of IbmTechnicalDisclosure with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a first computer communicating with a USB peripheral device across a network, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure with the art of Frantz to perform the test.

13.12. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Frantz with the art of IbmTechnicalDisclosure to produce the claimed invention.

14. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213).

Art Unit: 2123

14.1. Claims 2, 4, 11 and 12 are dependent claims of claim 1, and thereby inherit all of the rejected limitations of claim 1.

14.2. Regarding claim 2:

14.2.1. Frantz appears to teach USB peripheral devices (**Abstract, third sentence**).

14.2.2. Frantz does not specifically teach a peripheral emulator that is programmed to emulate one or more USB peripherals.

14.2.3. IbmTechnicalDisclosure appears to teach a peripheral emulator that is programmed to emulate one or more peripherals (**page 1212, first paragraph labeled 2p**).

14.3. Regarding claim 4:

14.3.1. Frantz appears to teach USB peripheral devices (**Abstract, third sentence**).

14.3.2. Frantz does not specifically teach a peripheral emulator that comprises a general-purpose computer programmed to emulate one or more USB peripherals.

14.3.3. IbmTechnicalDisclosure appears to teach a peripheral emulator that comprises general-purpose computer programmed to emulate one or more peripherals (**page 1212, first paragraph labeled 2p, and second paragraph**).

14.4. Regarding claim 11:

14.4.1. Frantz appears to teach an Ethernet network interface (**column 4, lines 1 - 6**).

14.4.1.1. Regarding (column 4, lines 1 – 6); it would have been obvious that an Ethernet communications line uses an Ethernet network interface.

14.5. Regarding claim 12:

14.5.1. Frantz appears to teach an Ethernet network communications protocol (column 4, lines 1 – 6).

14.5.1.1. Regarding (column 4, lines 1 – 6); it would have been obvious that an Ethernet communications line uses an Ethernet network communications protocol.

14.6. Regarding claims 2 and 4:

14.7. The motivation to use the art of IbmTechnicalDisclosure with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a USB peripheral device, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure with the art of Frantz to perform the test.

15. Claims 3 and 5 and 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of UsbHidClassDefinition (Universal Serial Bus, "Device Class Definition for Human Interface Devices (HID)", Version 1.11, June 27, 2001), further in view of UsbSpecs ("Universal Serial Bus Specification", Revision 1.1, September 23, 1998).

15.1. Claims 3, 5, 9 and 10 are dependent claims of claim 1, and thereby inherit all of the rejected limitations of claim 1.

15.2. The art of UsbSpecs is directed to specifications for Universal Serial Bus Specifications (Title).

15.3. The art of UsbHidClassDefinition is directed to specifications for device class definition for human interface devices (HID).

15.4. Regarding claim 3:

15.4.1. Frantz appears to teach USB peripheral devices (**Abstract, third sentence**).

15.4.2. Frantz does not specifically teach a peripheral emulator programmed to emulate HID, bulk, and isochronous USB peripherals.

15.4.3. IbmTechnicalDisclosure appears to teach a peripheral emulator that is programmed to emulate one or more peripherals (**page 1212, first paragraph labeled 2p**).

15.4.4. UsbHidClassDefinition appears to teach HID peripherals (**page 1, section 2.1 Scope**).

15.4.5. UsbSpecs appears to teach bulk (**page 46, section 5.8 Bulk Transfers**) and isochronous (**page 41, section 5.6 Isochronous Transfers**) peripherals.

15.5. Regarding claim 5:

15.5.1. Frantz appears to teach USB peripheral devices (**Abstract, third sentence**).

15.5.2. Frantz does not specifically teach a peripheral emulator comprising a general-purpose computer programmed to emulate HID, bulk, and isochronous USB peripherals.

15.5.3. IbmTechnicalDisclosure appears to teach a peripheral emulator comprising a general-purpose computer that is programmed to emulate one or more peripherals (**page 1212, first paragraph labeled 2p, and second paragraph**).

15.5.4. UsbHidClassDefinition appears to teach HID peripherals (**page 1, section 2.1 Scope**).

15.5.5. UsbSpecs appears to teach bulk (**page 46, section 5.8 Bulk Transfers**) and isochronous (**page 41, section 5.6 Isochronous Transfers**) peripherals.

15.6. Regarding claim 9:

15.6.1. Frantz does not specifically teach that a USB interface comprises at least four USB interfaces.

15.6.2. UsbSpecs appears to teach a USB interface that comprises at least four USB interfaces (**page 22, 4-3**).

15.6.3. The motivation to use the art of UsbSpecs with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a large number of USB peripheral devices would have needed the multiple interfaces provided in UsbSpecs.

15.7. Regarding claim 10:

15.7.1. Frantz does not specifically teach that USB messages comprise HID, bulk and isochronous USB messages.

15.7.2. UsbSpecs appear to teach that USB messages comprise bulk and isochronous USB messages (**page 41, section 5.6 Isochronous Transfers; and page 46, section 5.8 Bulk Transfers**).

15.7.3. UsbHidClassDefinition appears to teach HID USB messages (**page 4, the figure below the third paragraph**).

15.7.4. The motivation to use the art of UsbSpecs with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test USB peripheral devices of the bulk and isochronous types would have needed the bulk and isochronous USB messages in UsbSpecs.

15.7.5. The motivation to use the art of UsbHidClassDefinition with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a USB peripheral device of the HID type would have needed the HID USB message in UsbHidClassDefinition.

15.8. Regarding claims 3 and 5:

15.9. The motivation to use the art of IbmTechnicalDisclosure, UsbHidClassDefinition and UsbSpecs with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test USB peripheral devices of the types HID, bulk, and isochronous, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure, UsbHidClassDefinition and UsbSpecs with the art of Frantz to perform the test.

16. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical

Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of McConnell (McConnell, Steve; "Code Complete", 1993, Microsoft Press).

16.1. Claims 6 and 7 are dependent claims of claim 1, and thereby inherit all of the rejected limitations of claim 1.

16.2. The art of McConnell is directed toward software construction (Book cover), including testing (page 589, chapter title).

16.3. Regarding claim 6:

16.3.1. Frantz appears to teach USB peripheral devices (Abstract, third sentence).

16.3.2. Frantz appears to teach that a peripheral generates response messages to a host with peripheral parameters (figure 2; and figure 3, elements "communicate over appropriate interface", "instructions", and "remote activity translated to USB", elements 155 and 315; and column 5, lines 65 - 67; and column 6, lines 1 - 67);

16.3.3. Frantz does not specifically teach a peripheral emulator comprises a general-purpose computer.

16.3.4. Frantz does not specifically teach a general-purpose computer programmed to emulate one or more USB peripherals.

16.3.5. Frantz does not specifically teach a general-purpose computer further programmed to generate USB response messages that test the in-test host with ranges of USB peripheral parameters.

16.3.6. IbmTechnicalDisclosure appears to teach a peripheral emulator comprises a general-purpose computer (page 1212, first paragraph labeled 2p and second paragraph).

16.3.7. IbmTechnicalDisclosure appears to teach a general-purpose computer programmed to emulate one or more peripherals (page 1212, first paragraph labeled 2p and second paragraph).

16.3.8. IbmTechnicalDisclosure appears to teach testing an in-test host (page 1212, first paragraph labeled 2p and second paragraph).

16.3.9. McConnell appears to teach testing with ranges of parameters (page 604, section "Classes of Good Data", especially bullet "Maximum normal configuration").

16.4. Regarding claim 7:

16.4.1. Frantz appears to teach USB peripheral devices (Abstract, third sentence).

16.4.2. Frantz appears to teach that a peripheral generates response messages to a host with peripheral parameters (figure 2; and figure 3, elements "communicate over appropriate interface", "instructions", and "remote activity translated to USB", elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67);

16.4.3. Frantz does not specifically teach a peripheral emulator comprises a general-purpose computer.

16.4.4. Frantz does not specifically teach a general-purpose computer programmed to emulate one or more USB peripherals.

16.4.5. Frantz does not specifically teach a general-purpose computer further programmed to generate abnormal USB response messages in order to test the in-test host with such abnormal USB response messages.

16.4.6. IbmTechnicalDisclosure appears to teach a peripheral emulator comprises a general-purpose computer (page 1212, first paragraph labeled 2p and second paragraph).

16.4.7. IbmTechnicalDisclosure appears to teach a general-purpose computer programmed to emulate one or more peripherals (page 1212, first paragraph labeled 2p and second paragraph).

16.4.8. IbmTechnicalDisclosure appears to teach testing an in-test host (page 1212, first paragraph labeled 2p and second paragraph).

16.4.9. McConnell appears to teach testing with abnormal parameters (page 603, section "Classes of Bad Data", especially bullet "the wrong kind of data (invalid data)").

16.5. Regarding all claims:

16.6. The motivation to use the art of IbmTechnicalDisclosure with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a USB peripheral device, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure with the art of

Frantz to perform the test. Further, the artisan would have been motivated to use the art of McConnell because in order to test the software.

17. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of UsbSpecs ("Universal Serial Bus Specification", Revision 1.1, September 23, 1998), further in view of Tanenbaum (Tanenbaum, Andrew S.; "Computer Networks", third edition, 1996, Pentice-Hall).

17.1. Claim 8 is a dependent claim of claim 1, and thereby inherits all of the rejected limitations of claim 1.

17.2. The art of Tanenbaum is directed to computer communication networks (**Title**).

17.3. The art of UsbSpecs is directed to specifications for Universal Serial Bus Specifications (**Title**).

17.4. Frantz appears to teach USB peripheral devices (**Abstract, third sentence**).

17.5. Frantz appears to teach that a particular command message is designated for a particular one of a plurality of different emulated peripheral devices (**column 3, lines 65 – 68; and column 4, lines 1 – 30**).

17.5.1. Regarding (**column 3, lines 65 – 68; and column 4, lines 1 – 30**); since there were a plurality of peripheral devices, it would have been obvious that a command message is designated for a particular one of the peripherals.

17.6. Frantz appears to teach operating logic (**column 3, lines 65 – 68; and column 4, lines 1 – 30**).

17.7. Frantz does not specifically teach that a particular **USB** command message is designated for a particular one of a plurality of different emulated peripheral devices.

17.8. Frantz does not specifically teach that the network communications protocol supports a plurality of logical ports.

17.9. Frantz does not specifically teach that the operating logic maintains a correspondence between emulated peripheral devices and logical ports.

17.10. Frantz does not specifically teach that the operating logic sends said particular USB command message to one of the logical ports that corresponds to said one of the plurality of the different emulated peripheral devices.

17.11. Tanenbaum appears to teach a network communications protocol that supports a plurality of logical ports (**pages 486 – 487, section labeled “Berkeley Sockets”, especially figure 6-6, primitives SOCKET and BIND**).

17.11.1. Regarding (**pages 486 – 487, section labeled “Berkeley Sockets”, especially figure 6-6, primitives SOCKET and BIND**); it would have been obvious that the network communications protocol supports a plurality of logical ports, because multiple sockets and addresses can be created.

17.12. UsbSpecs appears to teach that operating logic maintains a correspondence between peripheral devices and logical ports (**page 21, section 4.8.1 Device Characterizations, first sentence**).

17.12.1. Regarding (**page 21, section 4.8.1 Device Characterizations, first sentence**); it would have been obvious that operating logic was used to maintain a correspondence between a peripheral device and an address (a type of logical port).

17.13. UsbSpecs appears to teach operating logic sends a particular USB command message to one of the ports that corresponds to one of a plurality of different peripheral devices (**page 21, section 4.8.1 Device Characterizations, first sentence; and page 36, section 5.5 Control Transfers, second sentence**).

17.13.1. Regarding (**page 21, section 4.8.1 Device Characterizations, first sentence; and page 36, section 5.5 Control Transfers, second sentence**); it would have been obvious that operating logic sends a particular USB command message to one of the ports that corresponds to one of a plurality of different peripheral devices.

17.14. The motivation to use the art of UsbSpecs with the art of Frantz with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test USB peripheral devices would have needed the USB specifications, and the USB specifications are provided by UsbSpecs.

17.15. The motivation to use the art of Tanenbaum with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test USB peripheral devices, where the peripheral devices were available across a network, would have needed a network communications protocol, and Tanenbaum provides a network communication protocol (Berkeley sockets).

18. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of Tanenbaum (Tanenbaum, Andrew S.; "Computer Networks", third edition, 1996, Pentice-Hall).

Art Unit: 2123

18.1. Claims 13 and 14 are dependent claims of claim 1, and thereby inherit all of the rejected limitations of claim 1.

18.2. The art of Tanenbaum is directed to computer communication networks (**Title**).

18.3. Regarding claim 12:

18.3.1. Frantz does not specifically teach the IP network communications protocol.

18.3.2. Tanenbaum appears to teach the IP network communication protocol (**page 412, last paragraph that starts with "The glue . . ."**).

18.3.3. The motivation to use the art of Tanenbaum with the art of Frantz would have been obvious because an ordinary artisan at the time of invention using the Internet communications line of Frantz (**column 4, lines 1 – 6**) would naturally use the Internet Protocol (IP) of Tanenbaum.

18.4. Regarding claim 13:

18.4.1. Frantz does not specifically teach the UDP over IP network communications protocol.

18.4.2. Tanenbaum appears to teach the UDP over IP network communications protocol (**page 542, section 6.4.8**).

18.4.3. The motivation to use the art of Tanenbaum with the art of Frantz would have been obvious because an ordinary artisan at the time of invention using the Internet communications line of Frantz (**column 4, lines 1 – 6**) would naturally use the UDP over IP network communications protocol because it is faster than establishing and releasing a connection (**Tanenbaum, page 542, section 6.4.8**).

19. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) in view of IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213).

19.1. The art of Frantz is directed toward a system in which a first computer couples to an interface unit via a Universal Serial Bus (USB), and the interface unit couples to a remote computer (column 1, lines 22 -32) via a network link (column 7, lines 9 - 15; and figure 1, element 175; and column 3, lines 65 - 68; and column 4, lines 1 - 30) such that peripherals and input/output devices of the remote computer appear as peripherals and input/output devices of the first computer (column 1, lines 22 -32).

19.2. The art of IbmTechnicalDisclosure is directed toward using a second computer to emulate multiple input/output devices such that it can be attached to a first computer for testing the first computer system and its computer programs (page 1212, first paragraph). It also provides the capability for testing programs that drive currently unavailable devices (page 1212, first paragraph).

19.3. Frantz appears to teach USB peripheral devices (Abstract, third sentence).

19.4. Frantz appears to teach receiving USB command messages from the host (figure 1, elements 125 and 150; figure 2, elements 100, 150, 80, 86, 87, 125, 181; and column 3, lines 65 -67; and column 4, lines 1 - 16).

19.5. Frantz appears to teach packaging the received USB command messages in command data packets formatted in accordance with a network communications protocol (figure 1, elements 150, 160, 175, 265, 250; figure 2, elements 150, 170, 180, 155, 190, 165, 195, 175, 270; and column 3, lines 65 -67; and column 4, lines 1 - 16).

Art Unit: 2123

19.5.1. Regarding (figure 1, elements 150, 160, 175, 265, 250; figure 2, elements 150, 170, 180, 155, 190, 165, 195, 175, 270; and column 3, lines 65 – 67; and column 4, lines 1 – 16); since in column 4, lines 1 – 16, it is recited that communication is through methods such as Ethernet or Internet, it would have been obvious that the received USB command messages were packaged in command data packets formatted in accordance with a network communications protocol.

19.6. Frantz appears to teach sending the command data packets to one or more peripherals over network communications media (figure 2, elements 150, 200, 170, 175, 270, 285, 225, 235, 280, 290, 240, 245, 295; and column 3, lines 65 – 67; and column 4, lines 1 – 47).

19.7. Frantz appears to teach receiving response data packets from the one or more peripherals over the network communications media, wherein the response data packets are formatted in accordance with a network communications protocol (figure 2, elements 150, 200, 170, 175, 270, 285, 225, 235, 280, 290, 240, 245, 295; and column 3, lines 65 – 67; and column 4, lines 1 – 47).

19.7.1. Regarding (figure 2, elements 150, 200, 170, 175, 270, 285, 225, 235, 280, 290, 240, 245, 295; and column 3, lines 65 – 67; and column 4, lines 1 – 47); since in column 4, lines 1 – 16, it is recited that communication is through methods such as Ethernet or Internet, it would have been obvious that the response data packets were formatted in accordance with a network communications protocol.

19.8. Frantz appears to teach unpackaging USB response messages from the received response data packets (figure 2, elements 270, 175, 170, 195, 180, 181, 125, 87, 86, 80, 155, 190, 165; column 3, lines 65 – 67; and column 4, lines 1 – 47; and figure 3, elements 155, 325, 320, 25, 315, and connecting communication links).

19.8.1. Regarding (figure 2, elements 270, 175, 170, 195,180, 181, 125, 87, 86, 80, 155, 190, 165; column 3, lines 65 –67; and column 4, lines 1 – 47; and figure 3, elements 155, 325, 320, 25, 315, and connecting communication links);

it would have been obvious that the system was unpackaging USB response messages from the received response data packets.

19.9. Frantz appears to teach sending the unpackaged, USB response messages to the host (figure 2, elements 270, 175, 170, 195,180, 181, 125, 87, 86, 80, 155, 190, 165; column 3, lines 65 –67; and column 4, lines 1 – 47; and figure 3, elements 155, 325, 320, 25, 315, and connecting communication links).

19.9.1. Regarding (figure 2, elements 270, 175, 170, 195,180, 181, 125, 87, 86, 80, 155, 190, 165; column 3, lines 65 –67; and column 4, lines 1 – 47; and figure 3, elements 155, 325, 320, 25, 315, and connecting communication links);

it would have been obvious that the system was sending unpackaged, USB response messages to the host.

19.10. Frantz does not specifically teach receiving USB command messages from the in-test host.

19.11. Frantz does not specifically teach sending the command data packets to one or more peripheral emulators over network communications media.

19.12. Frantz does not specifically teach receiving response data packets from the one or more peripheral emulators over the network communications media, wherein the response data packets are formatted in accordance with a network communications protocol.

19.13. Frantz does not specifically teach sending the unpackaged, USB response messages to the in-test host.

Art Unit: 2123

19.14. IbmTechnicalDisclosure appears to teach an in-test host (page 1212, first paragraph labeled 2p) and a peripheral emulator (page 1212, first paragraph labeled 2p).

19.15. The motivation to use the art of IbmTechnicalDisclosure with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a first computer communicating with a USB peripheral device across a network, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure with the art of Frantz to perform the test.

19.16. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of Frantz with the art of IbmTechnicalDisclosure to produce the claimed invention.

20. Claims 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213).

20.1. Claims 29 and 31 are dependent claims of claim 28, and thereby inherit all of the rejected limitations of claim 28.

20.2. Regarding claim 29:

20.2.1. Frantz appears to teach USB peripheral devices (Abstract, third sentence).

20.2.2. Frantz does not specifically teach emulating one or more different USB peripherals within the one or more peripheral emulators to create the incoming USB messages.

20.2.3. IbmTechnicalDisclosure appears to teach emulating one or more different peripherals within one or more peripheral emulators to create the incoming peripheral messages (page 1212, first paragraph labeled 2p and second paragraph).

20.2.3.1. Regarding (page 1212, first paragraph labeled 2p and second paragraph); it would have been obvious that the peripheral emulator creates incoming peripheral messages.

20.3. Regarding claim 31:

20.3.1. Frantz appears to teach an Ethernet network communications protocol (column 4, lines 1 - 6).

20.3.1.1. Regarding (column 4, lines 1 - 6); it would have been obvious that an Ethernet communications line uses an Ethernet network communications protocol.

21. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of McConnell (McConnell, Steve; "Code Complete", 1993, Microsoft Press).

21.1. Claim 30 is dependent claim of claim 28, and thereby inherits all of the rejected limitations of claim 28.

21.2. The art of McConnell is directed toward software construction (Book cover), including testing (page 589, chapter title).

21.3. Frantz appears to teach response messages in response to the packaged command messages and packaging said response messages in the response data packets (figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”, elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67).

21.3.1. Regarding (figure 2; and figure 3, elements “communicate over appropriate interface”, “instructions”, and “remote activity translated to USB”, elements 155 and 315; and column 5, lines 65 – 67; and column 6, lines 1 – 67); it would have been obvious that there were response messages in response to the packaged command messages and that the said response messages were packaged in response data packets.

21.4. Frantz does not specifically teach creating abnormal USB response messages in response to the packaged USB command messages and packaging said abnormal USB response messages in the response data packets in order to test the in-test host’s ability to handle such abnormal USB response messages.

21.5. IbmTechnicalDisclosure appears to teach an in-test host (page 1212, first paragraph and second paragraph).

21.6. McConnell appears to teach testing with abnormal parameters in order to test the software’s ability to handle such abnormal parameters (page 589, and page 603, section “Classes of Bad Data”, especially bullet “the wrong kind of data (invalid data)”).

Art Unit: 2123

21.7. The motivation to use the art of IbmTechnicalDisclosure with the art of Frantz would have been obvious because an ordinary artisan at the time of invention needing to test a USB peripheral device, where the peripheral device was not yet available (as taught in IbmTechnicalDisclosure), would have emulated the USB peripherals (as taught in Frantz, in the Abstract, third sentence) and used the art of IbmTechnicalDisclosure with the art of Frantz to perform the test. Further, the artisan would have been motivated to use the art of McConnell because in order to test the software.

21.8. Therefore, as discussed above, it would have been obvious to the ordinary artisan at the time of invention to use the art of IbmTechnicalDisclosure and McConnell with the art of Frantz to produce the claimed invention.

22. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frantz (U.S. Patent 6,636,929, October 21, 2003) and IbmTechnicalDisclosure (IBM Technical Disclosure Bulletin, "Multiple Control Unit/Device Emulator for Testing Computer Programs", September 1971, Volume 14, Issue 4, pages 1212 - 1213), in view of Tanenbaum (Tanenbaum, Andrew S.; "Computer Networks", third edition, 1996, Pentice-Hall).

22.1. Claims 32 and 33 are dependent claims of claim 28, and thereby inherit all of the rejected limitations of claim 28.

22.2. The art of Tanenbaum is directed to computer communication networks (Title).

22.3. Regarding claim 32:

22.3.1. Frantz does not specifically teach the IP network communications protocol.

22.3.2. Tanenbaum appears to teach the IP network communication protocol (page 412, last paragraph that starts with "The glue . . .").

22.3.3. The motivation to use the art of Tanenbaum with the art of Frantz would have been obvious because an ordinary artisan at the time of invention using the Internet communications line of Frantz (column 4, lines 1 – 6) would naturally use the Internet Protocol (IP) of Tanenbaum.

22.4. Regarding claim 33:

22.4.1. Frantz does not specifically teach the UDP over IP network communications protocol.

22.4.2. Tanenbaum appears to teach the UDP over IP network communications protocol (page 542, section 6.4.8).

22.4.3. The motivation to use the art of Tanenbaum with the art of Frantz would have been obvious because an ordinary artisan at the time of invention using the Internet communications line of Frantz (column 4, lines 1 – 6) would naturally use the UDP over IP network communications protocol because it is faster than establishing and releasing a connection (Tanenbaum, page 542, section 6.4.8).

Conclusion

23. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS

Art Unit: 2123

of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure:

McAlear (U.S. Patent Number 6,721,332) The patent describes adaptors that bridge between a computer and USB peripherals connected to a LAN.

McAlear (U.S. Patent Number 6,389,029) The patent describes adaptors that bridge between a computer and USB peripherals connected to a LAN.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell L. Guill whose telephone number is 571-272-7955. The examiner can normally be reached on Monday - Friday 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on 571-272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the TC2100 Group Receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RG

Russ Guill

Examiner
Art Unit 2123
Primary Examiner
Art Unit 2125